

GLOBE INTERNATIONAL SCIENCE FAIR—JUDGING RUBRIC AND BADGES FOR HS SCIENCE PROJECTS

Level Element	Basic – 1	Progressing – 2	Good – 3	Superior - 4	Score
1. Abstract	A very brief abstract is present.	A partially complete abstract is present.	<p>A complete abstract that summarizes the report is present. The abstract includes:</p> <ul style="list-style-type: none"> • The problem, • Questions asked, • Objectives set, • Conclusions made, and • Recommendations for a way forward. <p>Abstract follows designated format and does not exceed 200 words.</p>	A well-written, complete abstract that summarizes the report is present that includes all of the components required at level 3.	
2. Research question(s) (required for acceptance)	Student-led research question(s) are asked ; questions may be simple enough to answer without research or are beyond the scope of a GLOBE project report.	<p>Student-led research question(s) are asked, explained, and:</p> <ul style="list-style-type: none"> • Concern some aspect of Earth’s environment, • Include a brief description of background information, and • Are answerable through scientific research appropriate to the scope of the report. 	<p>Original, student-led research question(s) include all of the components at level 2, and:</p> <ul style="list-style-type: none"> • Include why they are important, • Require a thoughtful research plan, and • Are of scientific interest. 	<p>Clear, creative, and student-led research question(s) include all of the components at level 3, and:</p> <ul style="list-style-type: none"> • Include a well-written description of background information, • Provide significant insight into both the topic of investigation and the research process, and • Answering them requires an advanced understanding of the subject matter. 	

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3. Hypothesis	A brief hypothesis is present.	A testable and measurable hypothesis is present.	A testable and measurable hypothesis is present that: <ul style="list-style-type: none"> Proposes a possible explanation to a phenomenon or problem, and Defines how it is testable. 	A well-written hypothesis is present, that includes all of the components at level 3, and: <ul style="list-style-type: none"> Clearly defines how it is both testable and measurable. 	
4. Student-led investigation plan	A brief investigation plan is present.	A partially complete investigation plan is present that describes a student-led research process.	A complete investigation plan is present that: <ul style="list-style-type: none"> Describes a student-led research process, and Lists the steps to complete project. 	A clear and complete investigation plan is present that includes the components at level 3, and: <ul style="list-style-type: none"> Clearly outlines the steps to complete project, and Describes the collaboration process. 	
5. Research methods: Extent to which GLOBE protocols are incorporated (required for acceptance)	A small portion of the investigation includes use of GLOBE protocols .	GLOBE protocols are used, and: <ul style="list-style-type: none"> The data presented partially address at least one research question. 	A combination of GLOBE protocols is used, and: <ul style="list-style-type: none"> The data presented are sufficient to answer at least one research question. 	Full advantage is taken of a combination of GLOBE protocols , and: <ul style="list-style-type: none"> There is a direct link provided between the datasets and research question(s), and The scope of research is fully detailed, including how the data were analyzed (e.g. time period, geographic area, or specific sites involved). 	

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6. GLOBE data and data entry (required for acceptance)	GLOBE data were collected for the project.	GLOBE data were collected, and: <ul style="list-style-type: none"> Data from other GLOBE school(s) are included in the project. 	GLOBE data use includes all of the components at level 2, and: <ul style="list-style-type: none"> GLOBE data are entered into the GLOBE database. 	GLOBE data use includes all of the components at level 3, and: <ul style="list-style-type: none"> All sources of data not collected by submitting group are cited. 	
7. Data summary: Use of tables and/or graphics for data display (required for acceptance) <i>Other images are not scored for this element.</i>	Tables and/or graphical representations of data are present, including: <ul style="list-style-type: none"> Maps, Time series plots, or Other visualizations of the data. 	Tables and/or graphics are present that include the components at level 1, and: <ul style="list-style-type: none"> Provide comparisons between data, and Display data that supports the conclusion. 	Tables and/or graphics are present that include the components at level 2, and: <ul style="list-style-type: none"> Display enough of the data to support the conclusion, and Are orderly, well labeled, and easy to interpret. 	Tables and graphics are present that include the components at level 3, and: <ul style="list-style-type: none"> Are of high quality, Are well presented, and Enable the reader to easily grasp the key points of the paper. 	
8. Data analysis: Depth and quality	A simple data analysis is performed.	A partial analysis of the data is performed that is appropriate to the research topic.	A complete analysis of the data is performed, that: <ul style="list-style-type: none"> Is clearly explained, Is relevant to the research question(s), Presents sufficient mathematics and equations to clearly define the analysis, and Briefly mentions any uncertainties or limitations present in the dataset. 	An insightful and meticulous analysis of the data is performed, that includes the components at level 3, and: <ul style="list-style-type: none"> Is scientifically valid, Completely addresses the question(s) posed to the extent possible for the grade level, and Clearly discusses any uncertainties or limitations present in the dataset. 	

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9. Conclusion: Strength of conclusion (required for acceptance)	A conclusion is present and relevant to the report.	A conclusion is present and supported by the data.	A conclusion is present, supported by the data, and: <ul style="list-style-type: none"> • Gives a partial explanation of how the conclusion was reached, and • Describes how the data support the conclusion. 	A thoughtful conclusion is present that includes the components at level 3 and: <ul style="list-style-type: none"> • Gives a thorough and insightful explanation as to how the conclusion was reached, and • Recommends future research. 	
10. Discussion of measurement limitations including possible sources of error	A brief discussion of the limitations of the methods used is presented.	A partial discussion of the limitations of the methods used is presented.	A clear and complete discussion of the limitations of the methods used is presented.	A clear, complete and insightful discussion of the limitations of the methods used is present and a description is provided explaining the significance of these analyses.	
11. Bibliography /Citations	A few of the materials used include partial citations.	Some materials used are cited correctly.	Most materials used are cited correctly, including graphics, tables, or figures not created by students.	Materials used are cited completely and correctly , including any graphics, tables, or figures not created by students.	
12. Response to judges' comments	A few brief responses are included that partially describe how the report addresses the comments.	Most of the comments are addressed by responses make connections to the report, with some indication of ways to improve.	Most of the comments are addressed by making clear connections between the report, revisions and the comments.	All comments are addressed by making clear connections between the report, revisions and comments. Responses clearly indicate additional insight gained by addressing the comments.	
Total score					

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GLOBE INTERNATIONAL SCIENCE FAIR BADGE (ALL PROJECTS—OVERALL REPORT)

★	★★	★★★	★★★★
Report contains the five elements required for acceptance, clearly labeled. (2, 5, 6, 7 & 9)	Report contains most of the elements listed, and is organized and well-presented.	Report contains all 12 of the elements listed above, is organized and well presented. Most of the elements are scored at the 3-point level or above. Most of the writing is clear .	Report contains all 12 of the elements listed above, is well organized, neat and well presented. All of the elements are scored at the 3-point level or above. Most are scored at the 4-point level. The writing is clear and concise .

ADDITIONAL BADGES (UP TO 5—OPTIONAL)

Level Badge	★	★★	★★★	★★★★
B1. Collaboration	All team members are listed, along with some brief examples of contributions from each.	All team members are listed, along with a clear description of each student's contribution and some indication of how students supported one another.	All team members are listed, along with clearly defined roles, how these roles support one another, and descriptions of each student's contribution.	All team members are listed, along with clearly defined roles, how these roles support one another, and descriptions of each student's contribution. The descriptions clearly indicate the advantages of the collaboration.
B2. Community impact	The report includes a description of a local or global issue and how it is related to the research.	The report describes how a local or global issue motivated the research.	The report describes how a local or global issue led to the research questions, and describes possible impacts of the results for addressing the issue.	The report clearly describes how a local issue led to the research questions and makes connections between local and global impacts.

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B3. Connection to local or network scientist	The report includes a brief description of input from a scientist.	The report describes how input from a scientist extended students' understanding of the project.	The report describes collaboration with a scientist that enhanced the research methods and extended students' understanding of the results.	The report clearly describes collaboration with a scientist that enhanced the research methods, contributed to improved precision, and supported more sophisticated analyses and interpretations of results.
B4. Interscholastic connection	The report includes GLOBE data from at least two different schools.	The report includes GLOBE data from at least two different schools, regions or countries, and describes efforts to coordinate data collection. Data from the student expedition to Mt. Kilimanjaro may be included as part of this badge.	The report describes an interscholastic or international collaboration, including planning for data collection and comparing results.	The report describes a carefully planned interscholastic or international collaboration that describes rationales for data collection in different regions and the advantages of comparing results.
B5. Engineering solution	The report describes an engineering solution to a real-world problem, based on student-generated sources of evidence.	The report includes all of the components for level 1, and: <ul style="list-style-type: none"> • Describes the potential impact of the solution on the environment. 	The report includes all of the components for level 2, and: <ul style="list-style-type: none"> • Applies scientific ideas to the design cycle, • Describes how the design meets criteria defined in the context of the problem, and • Describes how constraints limit the design. 	The report includes all of the components for level 3, and: <ul style="list-style-type: none"> • Describes the relative priority of the criteria for solving the problem, and • Describes tradeoffs considered in designing the solution.